



Hand-raising a baby calf requires a commitment to providing adequate nutrition, housing, and care to give the calf the best chance to grow into a healthy, productive adult. Not all calves become sick, but if yours does, having a plan so that you can quickly respond with the appropriate supportive care will give your calf the best chance for recovery. Effective care will also minimize the long term impact the illness will have on the calf's health and productivity as an adult. This information is designed to help provide a better understanding of generally accepted calf management guidelines and how each recommendation benefits the calf. It is not intended to provide treatment recommendations - there is no substitute for sound advice from your veterinarian.

### **SCOURS (DIARRHEA) IS THE MOST COMMON HEALTH PROBLEM THAT YOUNG CALVES WILL FACE**

Scours are extremely common in young calves (less than one month old), and can be either nutritional or infectious in nature.

**Nutritional scours** can result from any of the following:

1. Inconsistent feeding, such as changing the feeding time or the amount of milk replacer fed
2. Sudden changes in the milk replacer or feed (even a different manufacturer of a similar formula)
3. Feeding poor-quality milk replacer or one that contains less digestible protein sources
4. Allowing the calf to consume excessive amounts of milk replacer or electrolytes solution

The good news is that most causes of nutritional scours are fairly easily prevented. Whenever possible, stick to a normal routine for mixing and feeding. Use a high-quality milk replacer that contains very digestible protein sources, particularly for the first 3 weeks of life. Make any diet changes over several days time by starting with a small amount of new formula mixed into the old formula, and gradually mixing more of the new with less of the old until the transition is complete. Feed according to the recommendations on the milk replacer label or tag unless directed otherwise by your veterinarian.

**Infectious scours** is caused by **pathogens**, which are microscopic disease-causing organisms such as bacteria (*E. coli*, *Salmonella* and *Clostridium*), viruses (Rotavirus and Coronavirus), and protozoa (*Cryptosporidia* and *Coccidia*) that are often present in the calf's environment. Calves are born with virtually no ability to fight disease on their own, so cleanliness is extremely important to limit exposure to pathogens, and colostrum feeding is critical to provide antibodies essential for developing a strong immune system. Many organisms commonly carried by healthy adult animals can cause disease in young calves. Make sure the calf receives high-quality colostrum shortly after birth, house the calf in a clean environment, and properly clean and sanitize feeding equipment to give your calf the best chance to stay healthy.

It is important to remember that antibiotics only treat certain kinds of infectious bacterial scours, and most kill beneficial bacteria as well as pathogens. It is best to look for any obvious nutritional causes of scours before turning to antibiotics. If the appropriate treatment does turn out to be antibiotic therapy, the calf will still benefit from your renewed focus on good management.

### **THE FIRST STEP TO TREATING CALF SCOURS IS REVERSING FLUID AND ELECTROLYTE LOSS**

Scours causes the calf to lose large amounts of water and electrolytes, which can lead to dehydration and possibly death if not treated quickly and properly. Dehydration is most often the cause of death in scouring calves, not whatever caused the diarrhea in the first place. Early recognition of scours is critical to successful treatment and recovery. Calves should be monitored daily for fecal consistency, or **scour score**. **The most common scale used is 1 to 4, with 1 being normal, fairly solid; 2 being normal, soft but still fairly formed; 3 being abnormal, runny and not formed; and 4 being abnormal, liquid or watery.** If the calf has a scour score of 3 or 4, immediately begin feeding an electrolyte solution to help restore water and electrolyte balance. Providing the calf with oral electrolyte therapy is often more effective than treating with antibiotics alone, because you do not often know which pathogen(s) are causing the scours without veterinary diagnostics.

### **CONTINUE FEEDING MILK, AND PROVIDE ELECTROLYTES SEPARATELY TO MAXIMIZE FLUID AND NUTRIENT INTAKE WHEN THE CALF IS SICK**

If your calf develops scours, continue to feed milk twice daily to supply the nutrients it needs to support its immune system. Electrolytes do not contain enough nutrients to support a calf without milk. Offer electrolyte solution between milk feedings, at mid-day and again late in the evening if needed. Allow at least 2-3 hours after feeding milk before offering electrolytes. Do not mix electrolytes powder into milk, as this method does not provide any additional fluid to the calf, and this is the primary purpose of using electrolytes. If the calf's diarrhea worsens or does not improve within 2-3 days, or if it appears weak or is visibly dehydrated, contact your veterinarian immediately.



### SOMETIMES PART OF THE SOLUTION TO CALF ILLNESS CAN BE IN THE MILK BOTTLE

There are several milk replacer additives that have been shown to help prevent or decrease the severity of scours in young calves when fed continuously for the milk feeding period. Milk replacers can contain **neomycin and oxytetracycline**, which are antibiotics that target several strains of *E. coli*, the most common bacteria found in scouring calves. Also available are milk replacers that contain either **decoquinate** (brand name Deccox<sup>®</sup>) or **lasalocid** (brand name Bovatec<sup>®</sup>). Both prevent **coccidiosis** in calves by either preventing or controlling infection from Coccidia organisms. Another option is to temporarily switch from your normal milk replacer to a medicated scours treatment that is a complete calf milk replacer. Scours treatment products can be labeled for feeding up to 14 days, and should always be fed as directed to provide the proper amount of medication.

If you prefer not to use a medicated milk replacer, non-medicated alternatives to antibiotics in milk replacers include **antibodies** (functional immune proteins from **colostrum, plasma, serum, or hyper-immunized egg products**), **mannan-oligosaccharides (MOS)**, **fructo-oligosaccharides (FOS)**, and **direct-fed microbials (DFM, beneficial bacteria)**, among others. Antibodies and MOS bind to pathogens in the calf's intestine to help prevent them from attaching and growing (also called **colonizing**). FOS and DFM selectively promote the growth of beneficial bacteria, which also helps to prevent pathogens from colonizing. Although there is no equally effective non-medicated replacement for antibiotics or coccidiostats in milk replacers, research indicates that many drug-free ingredients can work together to have a powerful positive impact on the health of the calf.

### GOOD BIOSECURITY IS ESSENTIAL FOR HELPING PREVENT THE SPREAD OF DISEASE

The term **bio-security** refers to the practice of limiting the spread of disease by carefully controlling animal interaction, and maintaining proper sanitation to limit animal exposure to pathogens. The **pathogen load** (the total number of pathogens in a given area) can build-up on your farm if animal pens and feeding prep areas are not cleaned regularly. Pathogens thrive in wet or dirty bedding material, and on dirty pen floors and walls. They can easily be carried on dirty hands, boots or clothing from one area to another. Below are several key components to a good bio-security program.

1. Isolate new arrivals to your farm for 2-3 weeks, especially those that have had a high level of exposure to other animals during shipping or temporary housing (such as animals purchased at a sale barn).
2. House young calves (pre-weaned) in individual pens or hutches to prevent direct, nose to nose contact.
3. When handling several animals, move from youngest to oldest, and always handle sick animals last.
4. Wear clean clothing and footwear each time you handle young calves to minimize the risk of spreading disease.
5. Thoroughly clean and sanitize each hutch or pen between calves. If possible, allow the clean hutch or pen to stand empty for 2-4 weeks before introducing the next calf.
6. Provide adequate bedding to keep the calf clean and dry.
7. Thoroughly clean and sanitize all feeding equipment after each use. Allow equipment to dry completely between uses.
8. Consider using disposable gloves and waterproof rubber boots that can easily be cleaned and sanitized after use. Have a bucket with disinfectant solution available to rinse your gloves between animals if possible.
9. Consider installing a footbath with disinfectant to help prevent the spread of pathogens on your footwear while you are doing chores. This can be as simple as a shallow rubber pan filled 2-3 inches deep with a solution of 3/4 cup bleach per gallon of water. Dip your feet between each pen that you enter, if possible, and change the solution daily, or when it starts to appear murky.

### PROPER VACCINATIONS, CLEAN AND WELL-VENTILATED HOUSING, AND GOOD NUTRITION ARE IMPORTANT FOR PREVENTING RESPIRATORY DISEASE

The most common health challenge experienced by older calves (over 1 month old) is **pneumonia** caused by either bacteria or a virus. Signs of pneumonia include coughing, nasal discharge and labored breathing. There are many treatment options for pneumonia, but early recognition of sickness is very important for successful treatment. Consult with your veterinarian to develop a treatment plan if your calf develops pneumonia or other respiratory disease.

### CONSULT WITH YOUR VETERINARIAN TO DEVELOP A VACCINATION PROGRAM SUITABLE FOR YOUR FARM

A calf will require several vaccinations early in life to help maintain good health and growth. Your veterinarian can help you identify areas of disease exposure, as well as the most prevalent pathogens on your farm to develop a comprehensive vaccination schedule for your calf.



#### **ADDITIONAL RESOURCES**

Your livestock veterinarian and local university extension agent are excellent resources for calf management information, as well as many online sources. Please visit the Learning and Resource Center at [www.savacaf.com](http://www.savacaf.com) for some helpful online links.

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